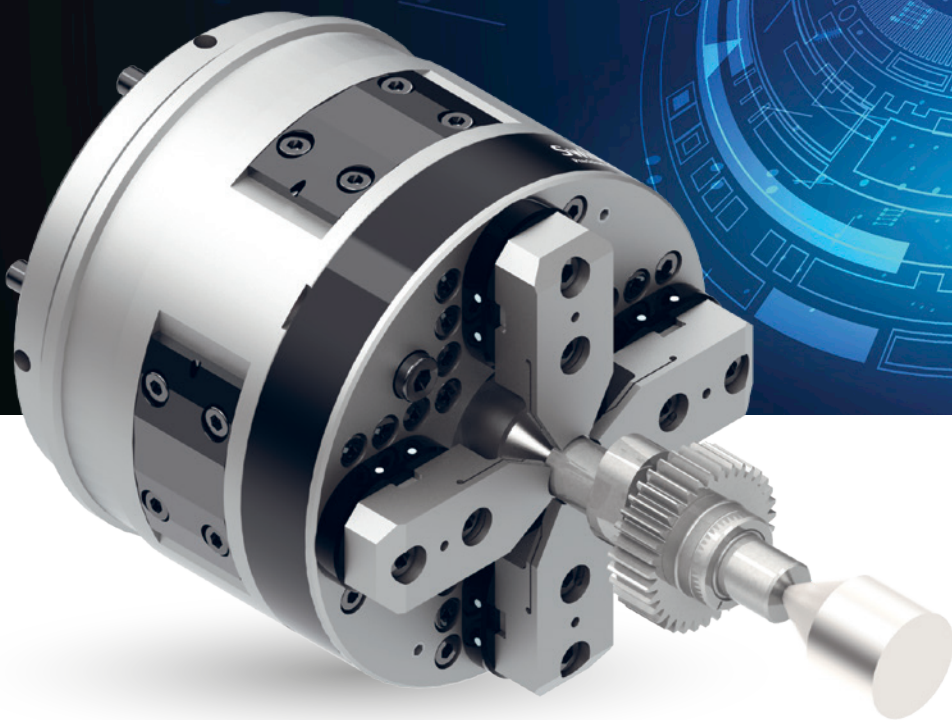


**PATENT**  
EP1 190 815



Compensating Chuck – Retractable  
OVEKAV / OVARZV



# COMPENSATING CHUCK – RETRACTABLE

The OVEKAV / OVARZV retractable compensating chucks made by SwissChuck are unique!

These chucking systems are designed for the grinding of cylindrical shafts that are held between centers. In the main, these chucks consist of two sections; a base unit with a center and a retractable chuck section with compensating jaws. The workpieces are held between centers and held by the compensating jaws, in the extended position. When the jaws are opened, the chuck can be retracted up to 50 mm. This retraction clears and frees up the previous holding location allowing it to be ground. The workpiece driving transfer is effected either by friction between the machine center and workpiece or by a face driver which engages with the workpiece.

These holding systems allow the complete finish grinding of workpieces in one holding operation.

The hydraulically activated chuck range OVEKAV additionally features the patented oil circulation lubrication EP1 190 815. All chuck internal components are actively lubricated before each holding operation. Hence, these virtually maintenance-free holding systems entail minimal life-cycle costs. Subsequently, these chucks eliminate potential manufacturing downtime that may be caused by holding fixtures.

## Vorteile



- With patented oil circulation lubrication
- Highly sensitive holding compensation
- Retractable chuck, travel length up to 50 mm
- Maintenance-free

## Funktion

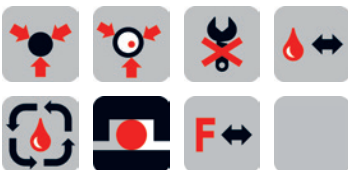
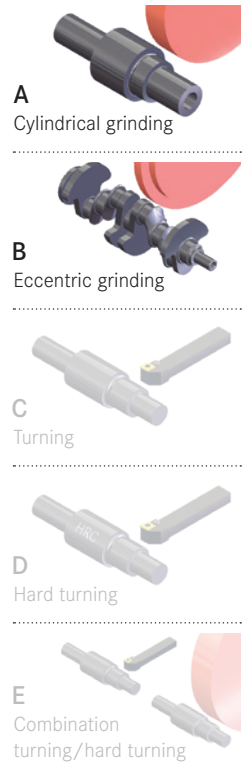


- Hydraulically or mechanically activated compensating chuck for holding between centers
- Retractable jaw chuck for the grinding of the previous holding location
- 2-, 3-, 4- and 6-jaw version in a range of sizes

# CHUCK TYPE 40VEKAV 145-12



Suitability as per  
machining process:



Explanation of symbols:  
SwissChuck.com

Type	Item	Retraction stroke [mm]	Number of jaws	Radial jaw stroke [mm]	Max. Holding force [kN]	Weight [kg]	Max. RPM [1/min]	Max. OD [mm]
40VEKAV 145-12	SX1002053	12	4	1.5	20	12	500	145

## Application: smaller workpieces

- Between centers
- Complete machining of outside geometry
- Suitable for small workpieces which require a medium transfer of torque for the grinding operation

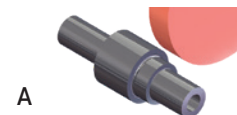
# CHUCK RANGE

## 3OVEKAV 180-35

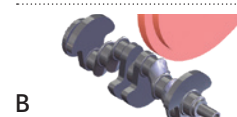


Explanation of symbols:  
SwissChuck.com

Suitability as per  
machining process:



A  
Cylindrical grinding



B  
Eccentric grinding



C  
Turning



D  
Hard turning



E  
Combination  
turning/hard turning

	Type	Item	Retraction stroke [mm]	Number of jaws	Radial jaw stroke [mm]	Max. Holding force [kN]	Weight [kg]	Max. RPM [1/min]	Max. OD [mm]
1*	3OVEKAV 180-35	SX1004843	35	3	2.5	20	28	3500	180
2*	3OVEKAV 180-35	SX1004910	35	3	2.5	20	29	3500 (5000**)	180
3*	3OVEKAV 180-35	SX1023879	35	3	2.5	20	29	3500	180

## Application: medium size workpieces

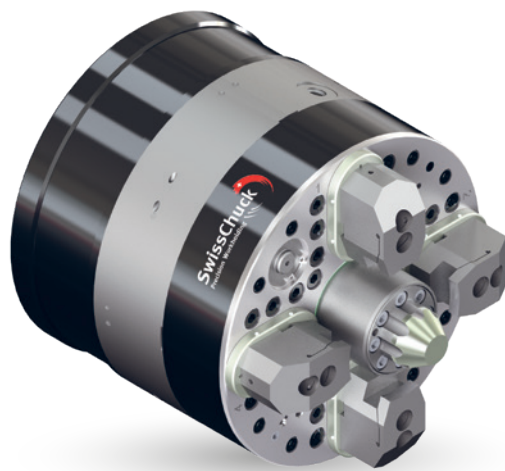
- Between centers
- Complete machining of outside geometry
- Suitable for medium size workpieces which require a medium transfer of torque for the grinding operation

### Versions:

- 1\* Hydraulically front-end activated version
- 2\* Retraction of the compensating chuck by using a pneumatic cylinder; holding and release pressure are hydraulically activated (5000 RPM with compensating chuck in retracted position)
- 3\* Hydraulically front-end activated version, additionally fitted with a hydraulically activated face driver

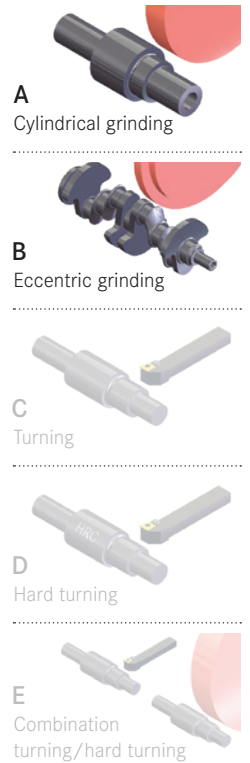
# CHUCK RANGE

## 4OVEKAV 220 / 270



Explanation of symbols:  
SwissChuck.com

Suitability as per  
machining process:



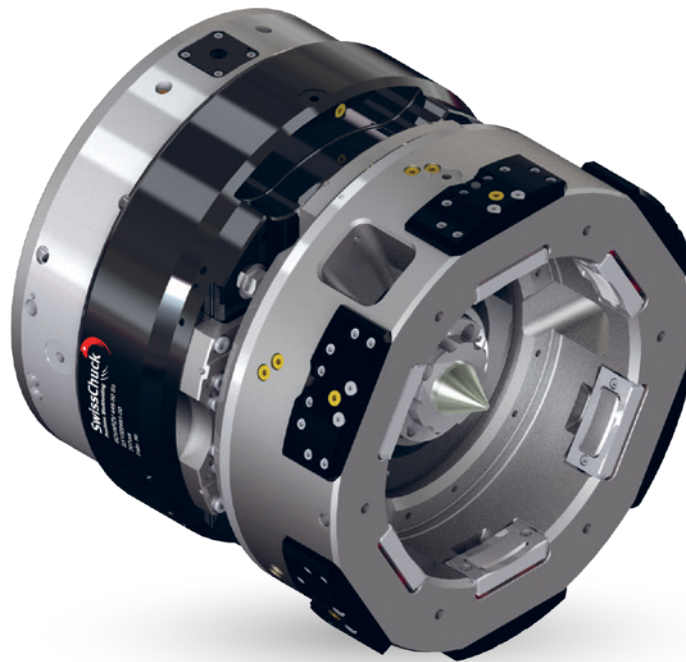
Type	Item	Retraction stroke [mm]	Number of jaws	Radial jaw stroke [mm]	Max. Holding force [kN]	Weight [kg]	Max. RPM [1 / min]	Max. OD [mm]
4OVEKAV 270-30	SX1009022	30	4	2	50	60	500	270
4OVEKAV 220-40	SX1009787	40	4	2	35	48	500	220
4OVEKAV 220-45	SX1022610	45	4	2	35	45	500	220

## Application: medium to large workpieces

- Between centers
- Complete machining of outside geometry
- Suitable for medium to large workpieces (i.e., car or truck crankshafts) which require a large transfer of torque for the grinding operation



# CHUCK TYPE 60VARZV 448-50



Suitability as per  
machining process:

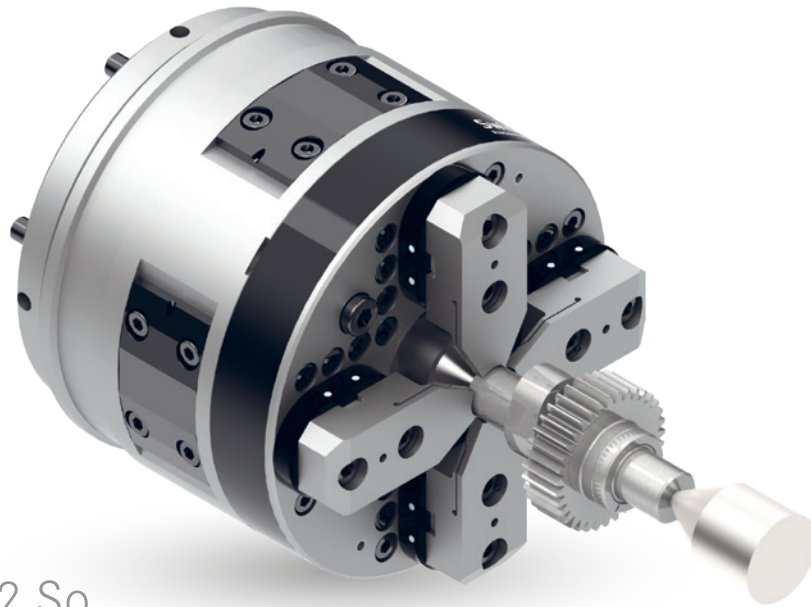


Explanation of symbols:  
SwissChuck.com

Type	Item	Retraction stroke [mm]	Number of jaws	Radial jaw stroke [mm]	Max. Holding force [kN]	Weight [kg]	Max. RPM [1/min]	Max. OD [mm]
60VARZV 448-50	SX1020481	50	6	5	88 / (125)	326	400	470

## Application: large workpieces

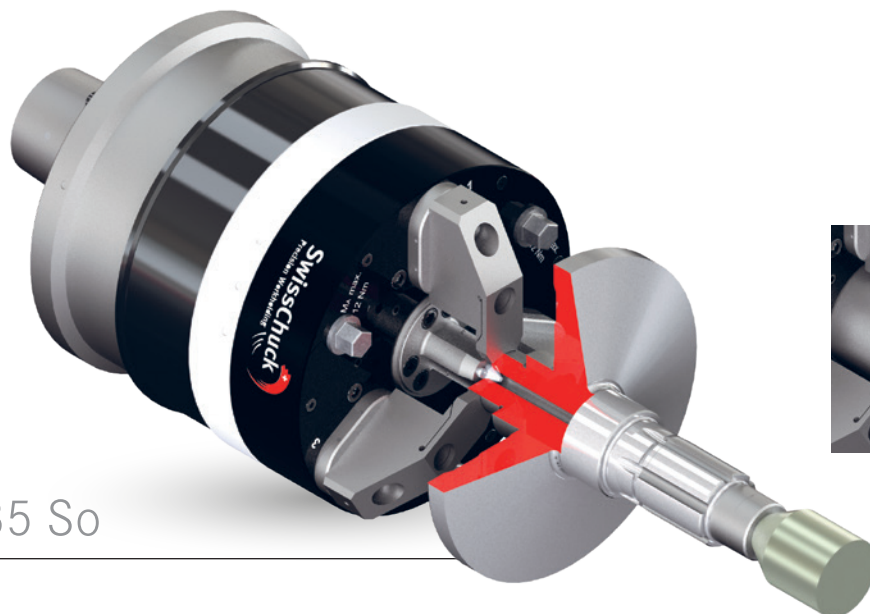
- Between centers
- Complete machining of outside geometry
- Suitable for large workpiece
- Holding diameter up to 300 mm



## 4 OVEKAV 145-12 So

### Example: small camshaft

- Grinding of the cam geometry and all outside diameters
- Driving of the workpiece during grinding of the shaft end section by using friction between the center and the workpiece



## 3 OVEKAV 180-35 So

### Example: CVT gear component

- Grinding of the complete outside contour
- Integrated face driver for driving of the workpiece when the compensating chuck is retracted

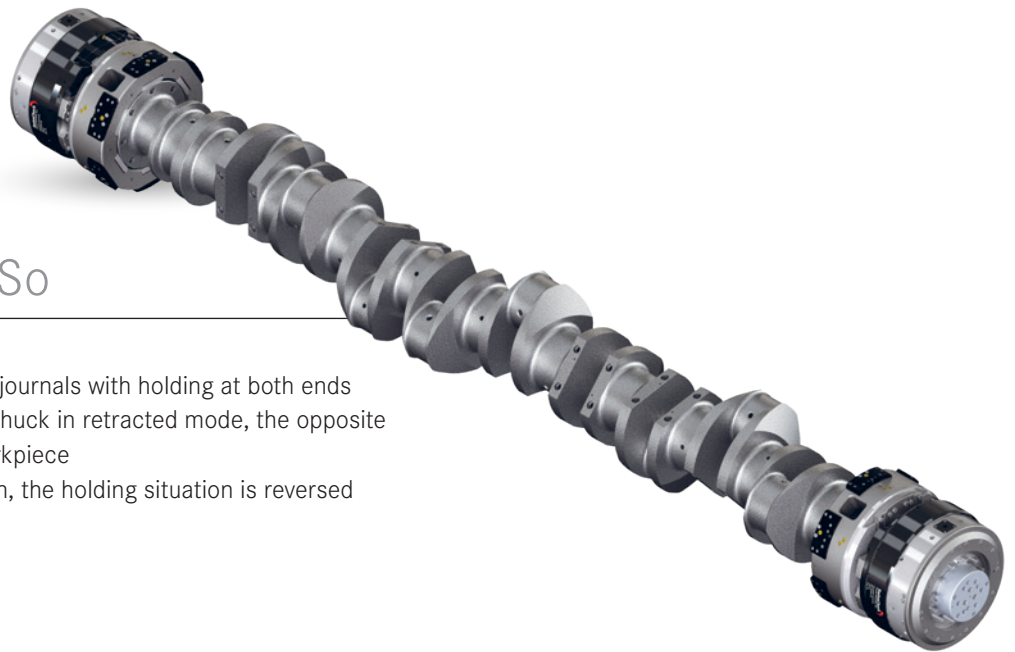


## 4 OVEKAV 220-40 So

### **Example: automotive crankshaft**

- Grinding of the main journals and crank pins, including end sections
- Counter spindle is mostly the same design for the two-way holding during the grinding of the shaft end sections
- Grinding of shaft end section while chuck in retracted mode, the opposite side remains clamped and drives the workpiece





## 6 OVARZV 448-50 So

### Example: large size crankshaft

- Grinding of the crank pins and main journals with holding at both ends
- Grinding of shaft end section while chuck in retracted mode, the opposite side remains held and drives the workpiece
- For grinding the opposite end section, the holding situation is reversed



Shaft held



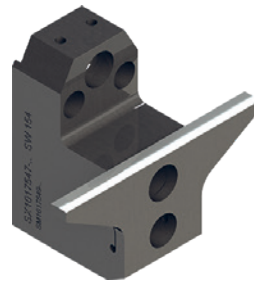
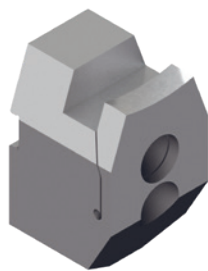
End section free

# ACCESSORIES

## TOP JAWS

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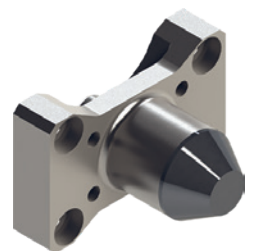
The top jaws are specifically workpiece designed by SwissChuck. In this way, the holding function of the chuck is perfectly transferred to the workpiece. The generally hardened jaws can be given an additional coating at the holding contact locations. This coating permits an even higher transmission of torque, or the holding force for sensitive workpieces can be reduced.



## CENTER POINTS

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As a rule, the wear-resistant center points are fitted with tungsten carbide inserts. The conical or spherical centers are designed and produced according to specific requirements. Some chucks are equipped with specifically produced tapered holders. The center points are produced according to specific gauges and can be installed with micrometric precision. The center point does not need to be aligned.



## CENTER POINT WITH FACE DRIVER

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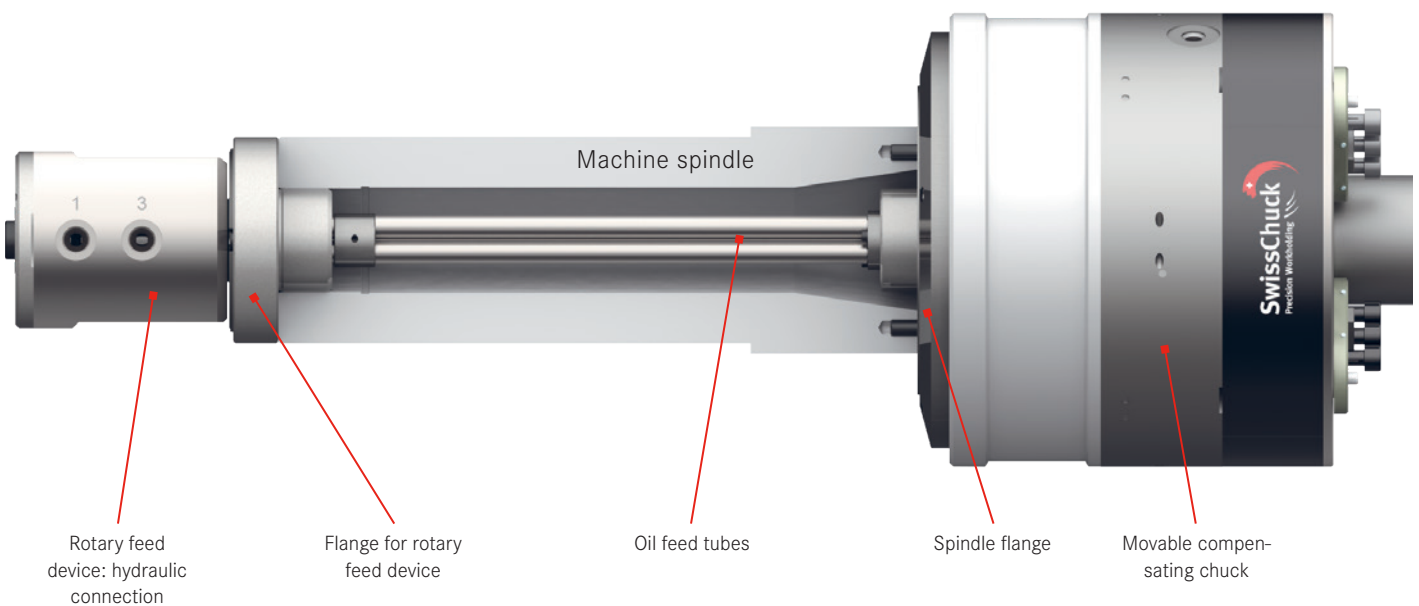
One variant of the chuck 3 OVEKAV 180-35 can be used with center points that feature hydraulically actuated face drivers.



## MOUNTING OF MACHINE TOOL SPINDLE



OVEKAV / OVARZV



## Mounting components

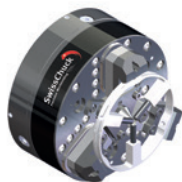
All chucks are specifically mounted according to the machine tool type and SwissChuck designs and provides all the required components. Hence, our customers receive the entire work holding unit ready for installation.

## Mounting of work holding systems

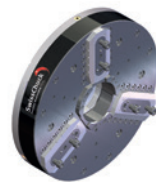
If desired, SwissChuck can mount the work holding system on the machine, or assist the customer's personnel during the commissioning and the start-up operation regarding the holding system. Furthermore, SwissChuck offers operator training.



**KCHP/VKHP**  
High-precision force chuck



**SAP to KCHP**  
Automated drive carrier



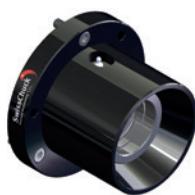
**KFHP**  
Precision power chuck



**KCHSF**  
Centrifugal force chuck



**VMCHP**  
Diaphragm chuck



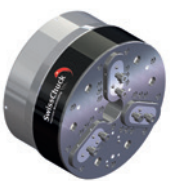
**LZK/LSK-S**  
Collet chuck with clamping lamellas



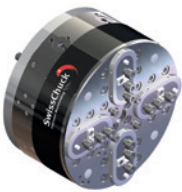
**DL**  
Collet expanding mandrel



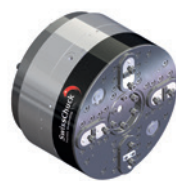
**TGC/FTGC**  
Tool chuck



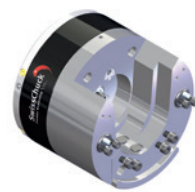
**OVEK**  
High-precision force chuck



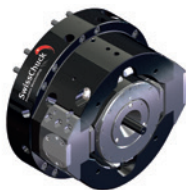
**OVEKA**  
Compensating chuck



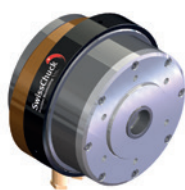
**OVEKAV**  
Moving compensating chucks



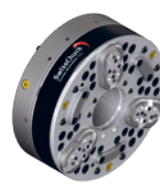
**FLD/AFLD**  
Twist finger type console chuck



**SPECIAL SOLUTIONS**  
Tailor made solutions



**PZLHM**  
Pneumatic force clamping cylinder



**TRITON**  
Precision lathe chuck

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SwissChuck.com



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